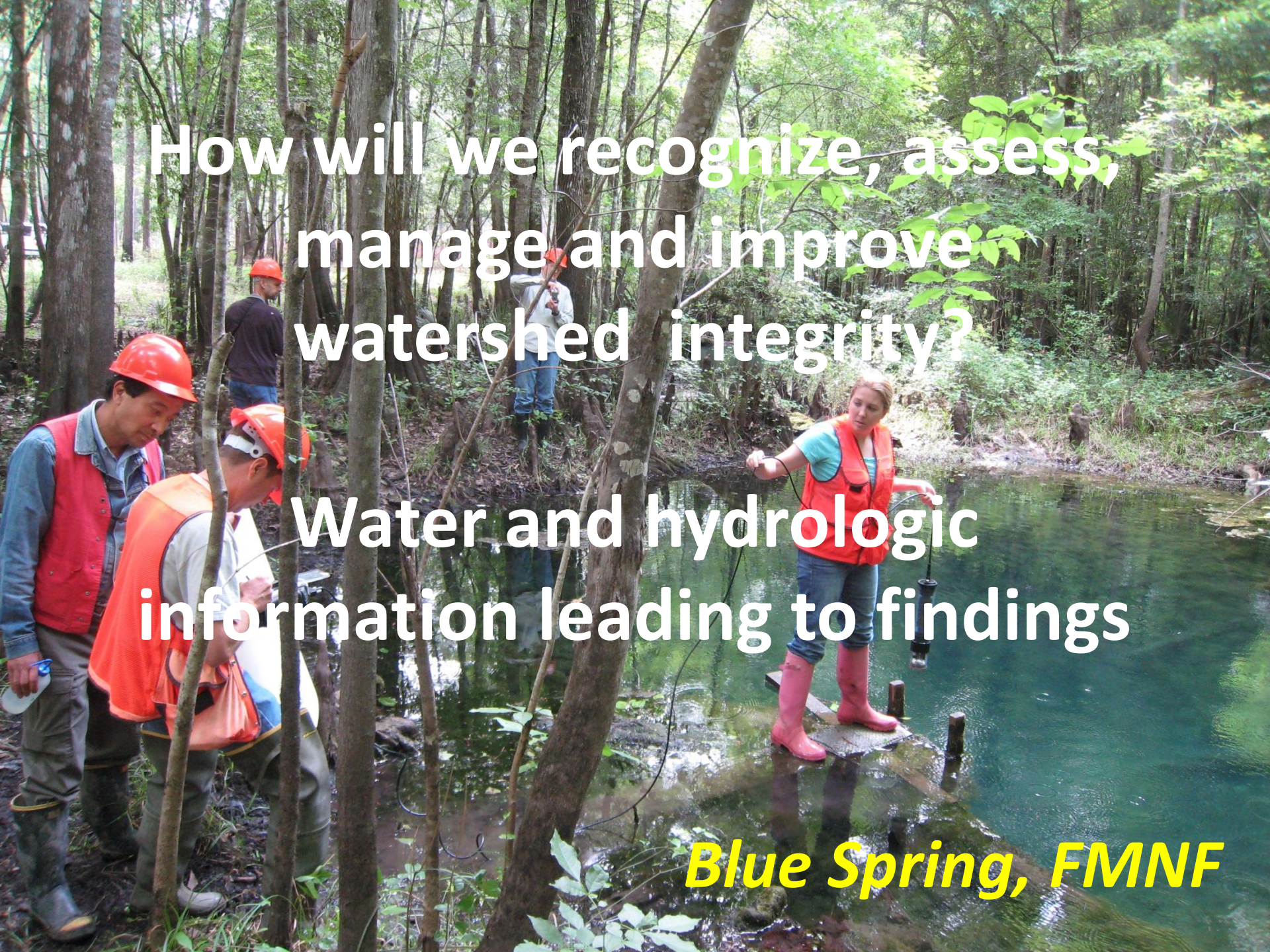
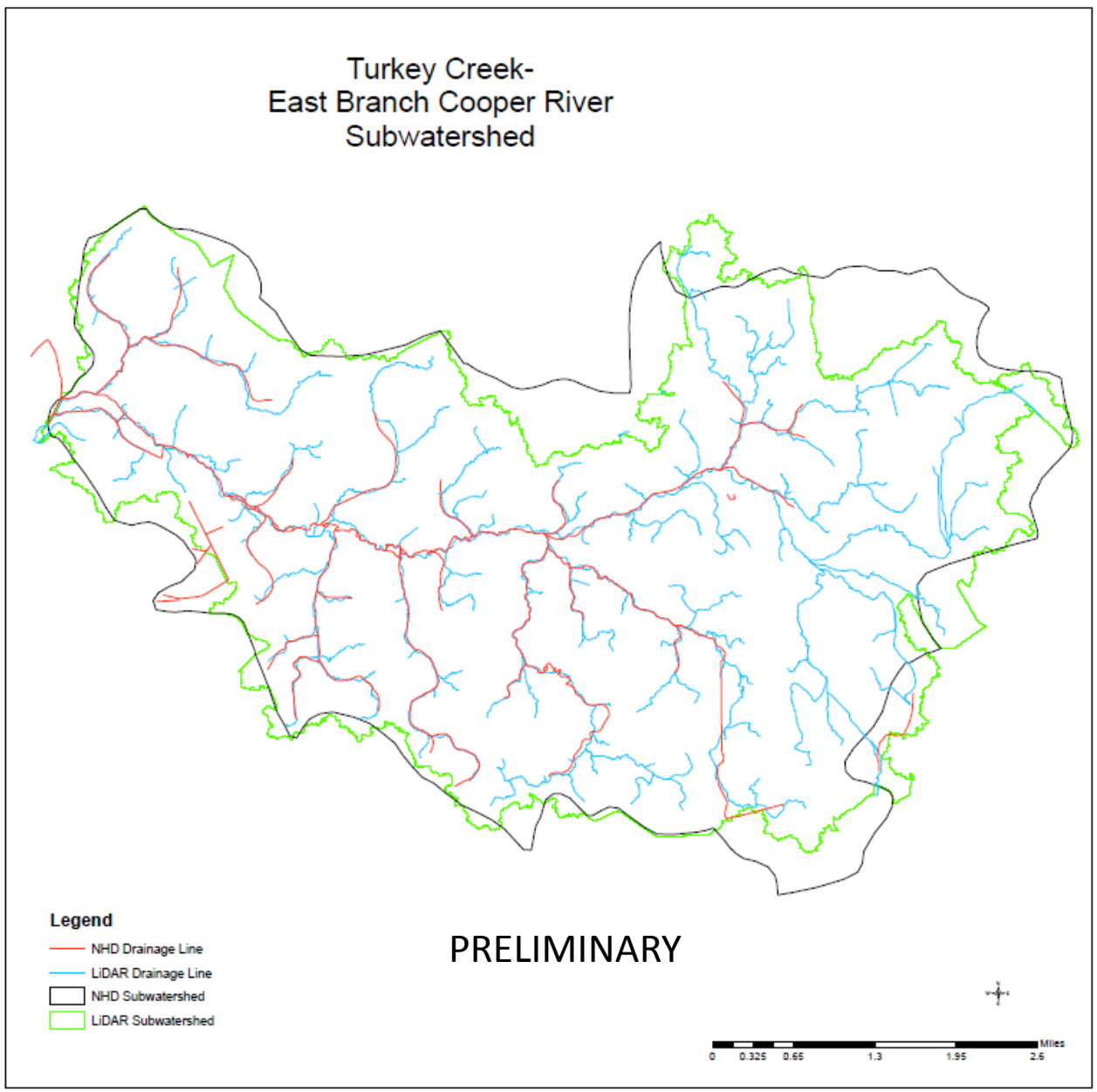

How will we recognize, assess, manage and improve watershed integrity?
Water and hydrologic information leading to findings
Blue Spring, FMNF

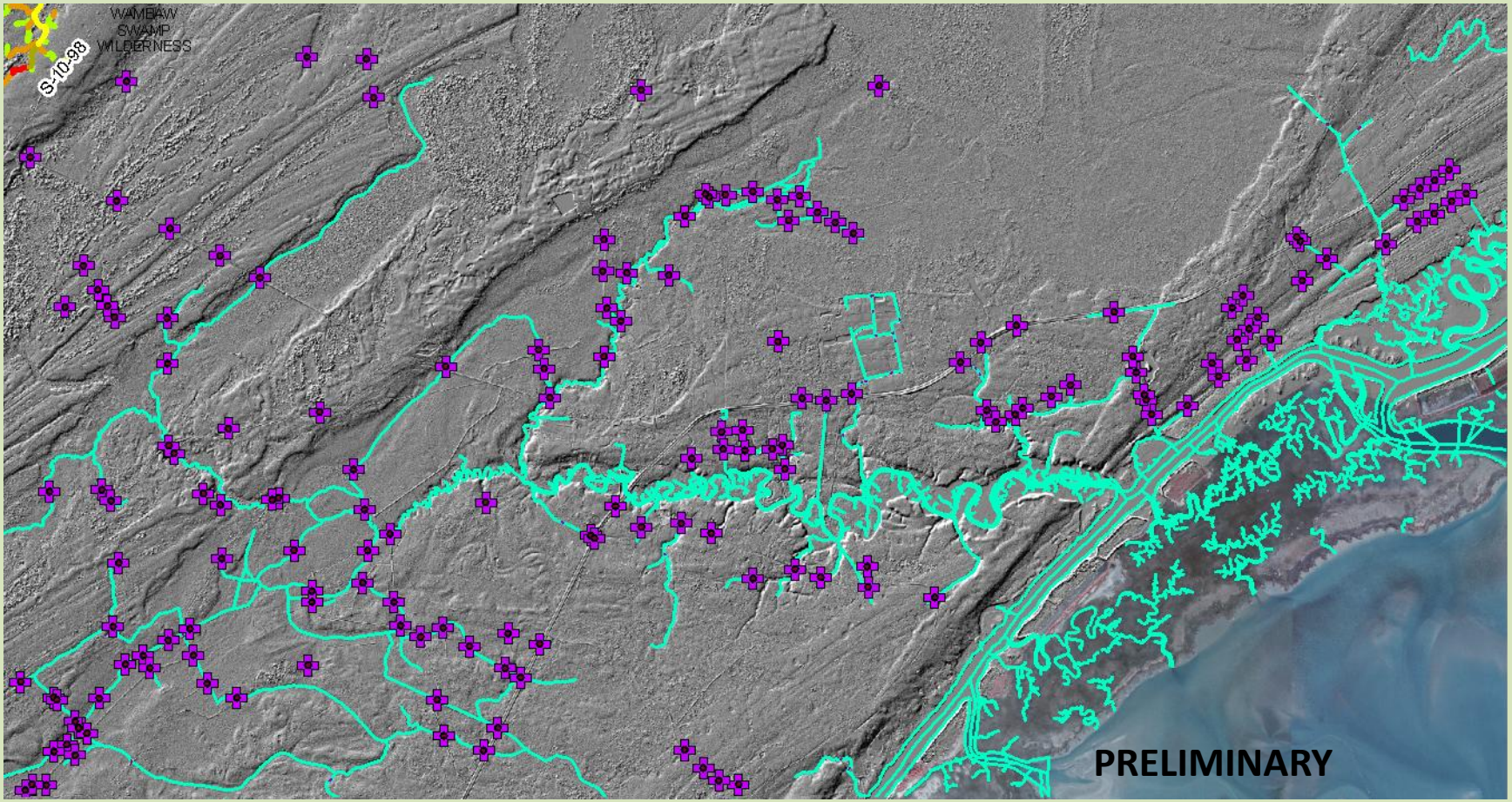
1. Hydrologic boundaries and NHD stream extent are out-of-date, based primarily from the 10 foot USGS topographic contour maps. Issue in process of being addressed.



Example DRAFT

Compare NHD streams (red = 19 miles) with LiDAR flow accumulation model streams (blue = 95 miles). Subwatershed boundary (current WBD black) with LiDAR – flow accumulation modeled boundary (green)

2. Freshwater and tidal areas have been locally modified by hydrologic modifications that affect localized fresh, brackish and salt water extent.
Awendaw Creek subwatershed has over 100 road, dike and other flow modifications identified by inspection. Hydrologic modifications were for access (roads, streams), rice culture (dikes, dams) and sometimes dikes to limit salt water extent. Ditching was also used to drain wetlands – not identified in this illustration. Impact of past adjacent major projects have not been addressed.



3. Riparian condition is not necessarily well known (However, generally good vegetation cover, limited ground disturbing activities, but with a legacy of hydrologic modifications and locally non-native invasive species such as feral hogs which add uncertainty).

4. Current estimates combine 153,000 acres of wetland, riparian, marsh, streams and aquatic areas as they overlap or are embedded and are not so easily separated.
(55-60% of the Francis Marion NF)

Other primary water/hydrology findings - bullets

5. The water needed (consumptive, non-consumptive, instream, groundwater, administrative) to protect, conserve, and sustain resources on the FMNF have not been fully determined and documented.

6. Black water streams - Methyl mercury bioaccumulation in next slide.

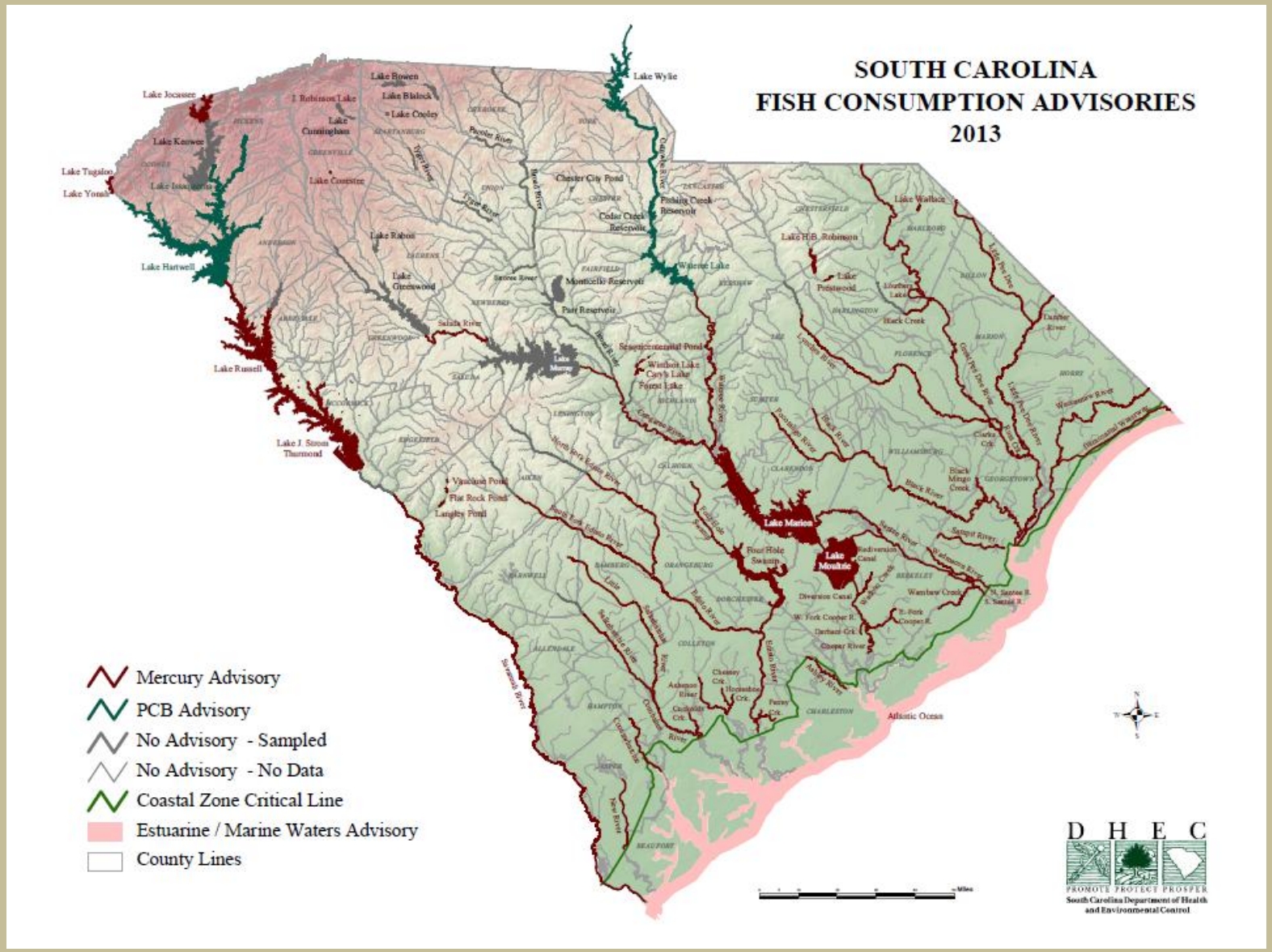
7. Ecosystem Services that address the needs for compensatory environmental mitigation for streams, wetlands, tidal lands and waters are in high demand in coastal areas.

8. Legacy and management effects to groundwater resources are uncertain at this time and were not addressed in former plans.

9. The extent, condition or limits of ephemeral streams are not easily determined, as they are poorly defined in the low gradient terrain.

Draft Forest Plan Assessment has additional findings and associated background information and references (sources).

6. Black water streams may include impaired waters as shown on the state fish consumption advisory map due to the bioaccumulation of methyl mercury.



Southern Research Station Ecohydrological Studies on the Santee Experimental Forest

- One of the major information sources
- Confirm issues with stream extent, density
- Confirm issues with watershed boundaries
- Confirm past hydrologic modifications
- Confirm LiDAR tool to address may hydrologic conditions and issues
- Address water quantity, quality, climate change, and other coastal stream and ecological issues

- *But we need to collaborate with many coastal interests*
- *Help us recognize, consider and integrate your knowledge, ideas*

Awendaw Creek Subwatershed (current = 40 sq miles)

Estimated **Natural s**tream network (blue) and subwatershed boundary (pink) with roads and other barriers removed (Simon and Heyden, 2013).
NHD streams = 18 miles (not shown), Flow accumulation model streams 167 miles.
Green is Current WBD Boundary of Subwatershed.